



AustLII's DataLex AI platform and its relevance to Law Faculties – *The DataLex Development Environment* –

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Most Australian Law schools include material relating to artificial intelligence (AI) in their undergraduate and postgraduate curriculums. Students are taught about a number of issues including: (i) how AI can be used to improve the efficient practice of the law; (ii) how AI is affecting the operation of government and the courts; (iii) how AI can be used to improve access to justice; and (iv) to enable better understanding of how AI-based applications are used in decision making and of the various risks, such as 'algorithmic bias', lack of natural justice, lack of transparency and lack of data privacy.

Law schools use a variety of software tools to enable students to obtain first-hand experience in developing AI-based applications to law.

The DataLex Legal Applications Development Environment

AustLII has developed the DataLex Legal Applications Development Environment and is making this available to any Australasian law schools who wish to use it. The software allows for the development of Rules as Code applications and also supports building document assembly and chatbot style systems. DataLex includes a web-based user interface, development tools, example applications; and documentation.

AustLII is making this package available to law schools, legal academics, and students, at no cost, for non-commercial use. Using this package, academics and Law Schools will be able to teach law students the principles and practices of 'coding law', using one of the two main streams of AI, symbolic reasoning systems (also known as 'rule-based reasoning', and 'rules as code' in the legal context). Applications ('apps') developed are automatically integrated with AustLII's source texts. Students can also learn how to develop practical applications of value to free legal advice providers such as community legal centres. Academics can also use the package to analyse the relationships between legal texts, and legal problems, and the ways in which law can be represented and made operative, using rules and other forms of representation.

DataLex is already in use at UNSW, UTS, and QUT. It is planned to introduce the DataLex system to the undergraduate Administrative Law subject at the University of Newcastle this semester.

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Where can the DataLex tools and applications be found?

The materials relating to DataLex are available at: www.datalex.org (below) and are publicly available. There is no need to set up any special accounts. The rest of this paper is a brief introduction to the DataLex development environment.

The screenshot shows the DataLex website interface. At the top, there is a navigation bar with 'Examples' and 'Documentation' links, and a button for 'More on DataLex Community'. The main heading reads 'DataLex applications built with yscript.'. Below this, a paragraph states: 'DataLex can be used to develop legal reasoning applications in areas such as legal advisory services, regulatory compliance, decision support and Rules as Code.' There are two buttons: 'DataLex Development Tools' and 'DataLex on AustLII Communities'. A large image shows a sample application interface for 'Community Gaming Regulation' with a chat-like input and output area. Below this, an 'EXAMPLES' section is titled 'DataLex application examples' and includes the text: 'The following applications ('apps') are of varying degrees of detail and demonstrate DataLex features.' Three application cards are shown: 'Australia's Foreign Relations Act' (labeled 'Cth'), 'Mandatory Bargaining Code' (labeled 'Cth'), and 'Community Gaming Regulation' (labeled 'NSW'). Each card provides a brief description of the app's purpose.

DataLex Guides and Training Materials

There are two basic guides to developing DataLex applications:

- [AustLII's DataLex Developer's Manual](#) - This document introduces students to writing DataLex applications. It explains the basic concepts and includes step-by-step instructions on how to use the DataLex Development Tools to build and run applications.
- [Coding with yscript](#) (May 2021) - This is a complete description and tutorial introduction to coding in the yscript language. yscript is an easy to learn and simple language which is used to build DataLex applications.

Further information can be found on [DataLex Community](#) pages.

DataLex Development Tools

The Application Development Tools page allows for the development of DataLex applications. It can be found via the main landing page or at: www.datalex.org/dev/tools.

DataLex Application Development Tools

Tools for DataLex application development and training

Note: Applications created using the DataLex software may only be used for educational and testing purposes. They may not be used for any other purposes, whether commercial or non-commercial.

Details of AustLII's DataLex project, including instructional materials on use of the software, are at <http://austlii.community/wiki/DataLex/>.

Comments on the DataLex software and these development tools are welcome, and should be sent to datalex@austlii.edu.au. We are very interested to see test applications developed using the software.

I Import legislative section (available on [AustLII](#))

Act Name (Incl Short title and Year eg *Freedom of Information Act 1982*)

Crimes Act 1914

Jurisdiction

Commonwealth

Section Number

15KQ

Import & Replace Import & Append ☒ Extract Links

E Edit DataLex application

Application

CRIMES ACT 1914 – SECT 15KQ
 Protection from criminal liability—authorised persons
 If an authorised person does something that, apart from this section, would be a Commonwealth offence or an offence under a law of a State or Territory, the person is not criminally responsible for the offence if:
 (a) the thing is done in the course of acquiring or using an assumed identity in accordance with an authority; and
 (b) the thing is done:
 (i) in the case of an authorised intelligence officer, an authorised law enforcement officer or an authorised foreign officer—in the course of his or her duty; or
 (ii) in the case of an authorised civilian—in accordance with any direction by his or her supervisor under the authority; and
 (c) doing the thing would not be an offence if the assumed identity were the person's real identity.

Run Consultation Check Fact Cross References Check Fact Translations Check Syntax ylegis Preprocessor

Clear Application Clear All

Using this tool, users can import statutory text directly from AustLII, use the [ylegis pre-processor](#) to convert it to a rough cut of yscript code, error-check the code for cross-references and for fact translations, edit if necessary, and then run a consultation to see how well the code works. A short paper, [The DataLex legislation pre-processor for rules as code](#) includes examples. Additional editing facilities and support for app development are provided within the [DataLex Community](#) pages.

DataLex Application Examples

These applications ('apps') are of varying degrees of detail and demonstrate DataLex features. Go to the app and select 'Run consultation' to run the app. To see examples of yscript code, select any of the 'See code here' links below. All these apps are for demonstration purposes only.

- [Australia's Foreign Relations Act consultation](#) - This app relates to the [Australia's Foreign Relations \(State and Territory Arrangements\) Act 2020](#) with a focus on "non-core foreign arrangements" (those that apply to Australian public universities). [See code here.](#)
- [News Media and Digital Platforms Mandatory Bargaining Code consultation](#) - This example is based on the [Competition and Consumer Act 2010, Part IVBA](#) Digital Platforms, Divisions 1 to 3 inserted by the [Treasury Laws Amendment \(News Media and Digital Platforms Mandatory Bargaining Code\) Act 2021](#). [See code here.](#)
- [Community Gaming Regulation consultation](#) - This example is based on the [Community Gaming Regulation 2020](#) (NSW). Parts of the app can also be run from the 'Consult' option on any section of the Regulation. [See code here.](#)
- [Modern Slavery Act consultation](#) - This example is based on the [Modern Slavery Act 2018](#) (Cth), and can also be run from the sections of the Act. It is an example of coding the whole of an Act. [See code here.](#)
- [Electoral law consultation](#) - This app concerns disqualification from standing for federal Parliament under s44 of the Commonwealth of Australia Constitution Act (Cth) and sections of the Commonwealth Electoral Act (Cth). This has been a contentious issue in Australian politics. It is used for examples in [this journal article](#). [See code here.](#)

Discussions of the DataLex approach

To understand more about the DataLex approach, read or watch any of the following.

- [AustLII DataLex video](#), Australian Society for Computers and Law, Rules as Code Masterclass series, #3 (YouTube, 11 May 2021, 1 hour 33 min.) presented by AustLII Co-Directors Andrew Mowbray and Philip Chung.
- Mowbray, Chung & Greenleaf '[Utilising AI in the legal assistance sector--Testing a role for legal information institutes](#)' (2020) *Computer Law & Security Review*, Volume 38, 2020 ([Available on SSRN](#)) – This paper explains the use of many DataLex features.
- Jason Morris (Canada), '["Rules as Code" Can and Should Be Done Without Programmers - An Example from Law to Code to App](#)' (Medium.com, 5 June 2019) – A Canadian user.

Who can use the DataLex tools?

The DataLex Development Environment is freely available for non-commercial use and may be used by Australian and overseas law schools. Any individual users are welcome to use the DataLex tools and documentation to test and run their own apps for personal educational purposes. Government agencies, and private organisations (NGOs) with public interest objectives are welcome to contact AustLII to discuss possible use of the DataLex package.

If you wish to discuss using DataLex for commercial projects, please contact AustLII's Development Manager: Richard Hunter richard@austlii.edu.au.